

CLAIMS

What is claimed is:

1. A method of cutting a plug of tissue from the wall of a blood vessel, the method comprising:
 - piercing the wall of the blood vessel, at a location in the wall through which blood previously had been substantially prevented from escaping, with a piercing element to create an opening therethrough;
 - cutting a plug from the wall of the blood vessel around the opening to create a hole in the blood vessel; and
 - inserting a trocar around the piercing element and into the hole in the wall of the blood vessel.
2. The method of claim 1, wherein at least a portion of said trocar has a lumen defined therein, and wherein said piercing element is positioned at least partially within said lumen of said trocar before said piercing.
3. The method of claim 1, further comprising removing said piercing element at least partly from said trocar.
4. The method of claim 3, further comprising capturing the plug in a trap associated with said piercing element; wherein removing includes removing said trap at least partly from said trocar.
5. The method of claim 1, further comprising cutting a second plug of tissue from the wall of the blood vessel around the opening therein.

6. The method of claim 1, further comprising maintaining the opening in the blood vessel with said trocar.

7. The method of claim 6, wherein said maintaining includes substantially maintaining hemostasis with said trocar.

8. A method for making an opening in a vessel, comprising:

 piercing the wall of the vessel with a piercing element;

 retracting said piercing element at least partially into a tube having a lumen; and

 moving said piercing element away from the longitudinal centerline of said tube.

9. The method of claim 8, wherein said moving includes moving said piercing element through an opening in a side wall of said tube.

10. The method of claim 9, wherein a member is attached to said piercing element and extends through said opening; and wherein said moving includes applying force to said member.

11. The method of claim 9, wherein said moving includes separating said piercing element from said tube.

12. The method of claim 9, wherein said removing comprises pivoting said piercing element at least partially through said opening.

13. The method of claim 9, further comprising storing said piercing element adjacent to said tube.
14. The method of claim 8, wherein said retracting cuts a tissue plug from the wall of the vessel.
15. The method of claim 14, further comprising retaining the tissue plug with said piercing element.
16. A method for making an opening in the wall of a hollow tissue structure, comprising:
 piercing the wall of the hollow tissue structure, at a location in the wall through which
 fluid previously had been substantially prevented from escaping, with a
 piercing element to create an opening therethrough;
 retracting the piercing element toward an opening in a body to cut a tissue plug from
 the wall of the hollow tissue structure; and
 capturing the tissue plug with said piercing element.
17. The method of claim 16, wherein said body is a tube.
18. The method of claim 16 wherein said opening in said body has a cutting edge defined thereon.
19. The method of claim 16, wherein said piercing element includes a pointed tip and an anvil surface proximal to said pointed tip, and wherein said retracting moves said anvil surface toward said opening in said body to cut the tissue plug.

20. The method of claim 16, wherein said piercing is performed by urging said piercing element distally with spring force.

21. The method of claim 16, wherein said piercing is performed by manually advancing said piercing element in the distal direction.

22. The method of claim 16, further comprising moving said piercing element away from the longitudinal centerline of said body after said capturing.

23. The method of claim 22, wherein said body includes a side opening defined therein; and wherein said moving is through said side opening.